THE USE OF DISPOSITIONAL CUES TO CAUSALITY IN JUDGEMENTS OF MECHANICAL AND LIVING INTERACTIONS

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BACKGROUND AND RATIONALE

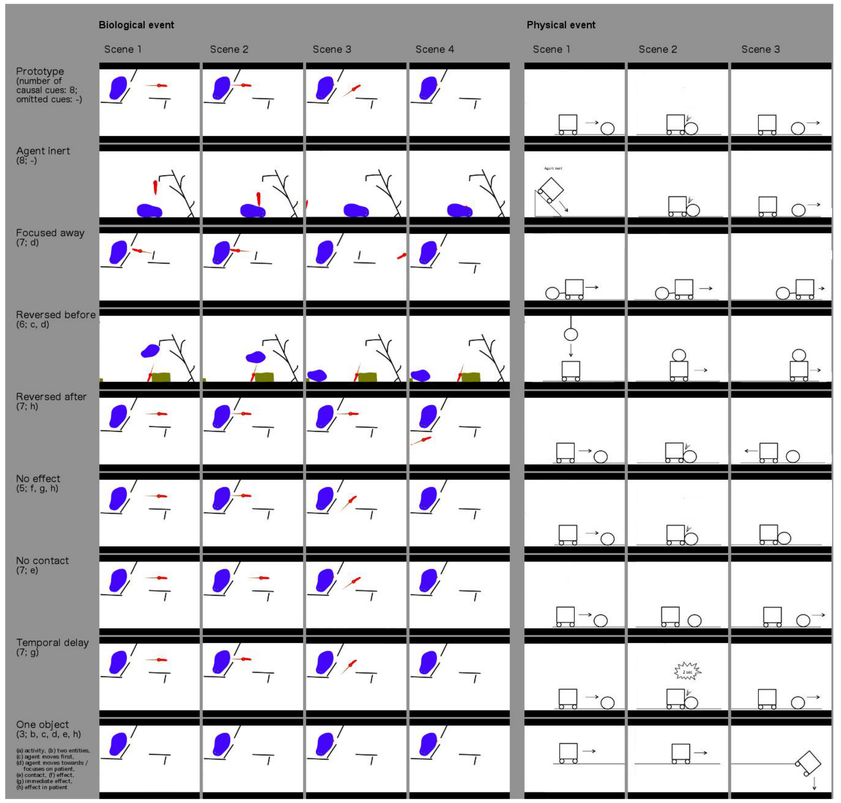
- Objective and perceived causal relations of natural phenomena might differ from each other.
- Dispositional theories claim that perceived causation originates from experiences of acting physically on objects from an early age[1-16].
- People perceive themselves as agent and the objects they act upon as the locus of the effect of their actions. In consequence, people attribute agent-patient-roles with intrinsic dispositions to interacting objects[15,16,17,18]. This prototypical action-on-object schema explains the way people causally understand mechanical and living interactions of natural phenomena.
- White (2014) demonstrated that particular prototypical causal cues (e.g., agentive cause, two interacting objects, contact, effect) in an interaction between an agent and a patient guided people's perception of causality. Further, the more causal cues an event involved the more the adult participants judged the event as causally related. In the present study, we refined White's 2014 study and extended it to the domain of biology.

Do children and adults use dispositional causal cues to interprete a prototype of living interaction and its variants, the latter of which lacks one or more event cues?

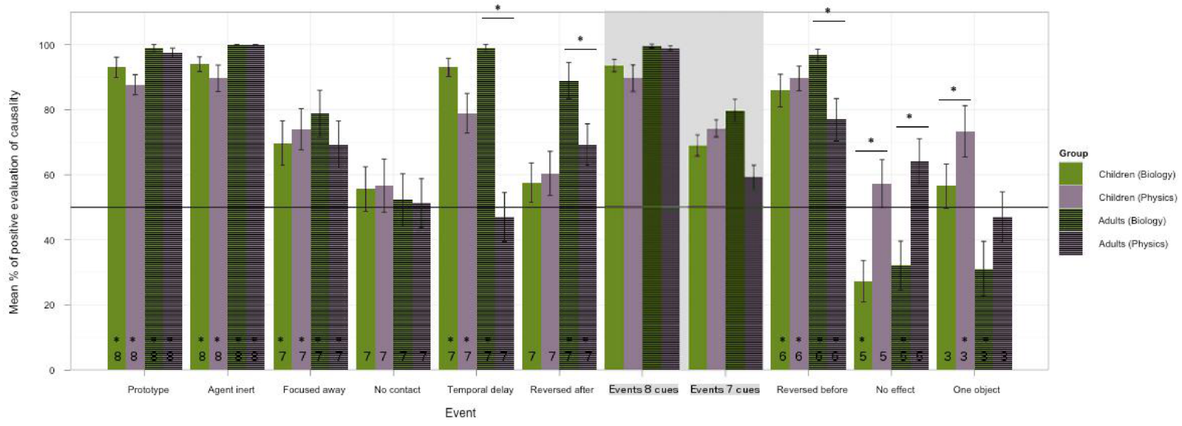
Does the reliance on dispositional cues to causality differ between judgements of mechanical and living interactions?

METHODS

- Thirty three first / second graders (age *M* = 6.7, *SD* = .4) and 30 lay adults (age *M* = 27.2, *SD* = 11.6) participated in the study.
- Children learned the meaning of the verb "to cause [German: bewirken]". Then, all participants watched a stinging event, seven prototypical variants with omitted cues, and one variant as non-prototype (non-agentive entity). After each event, they answered the question „Was anything caused?: Yes or no?“.
- The present data were directly compared to the data of an earlier study[20] where children and adults judged a launch event and its variants. In that study, a sample of 62 first / second graders (age *M* = 7.9, *SD* = .7) and 39 lay adults (age *M* = 23.8, *SD* = 3.7) were tested with the same procedure.



RESULTS



Mean percentage and standard errors of children's and adult's causal endorsements for each event in the biological and physical domain. The number of cues of each event is reported in the bars. Asterisk above number indicates reliable causal endorsement. Asterisk above short line indicates significant difference between the domains.

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DISCUSSION

A generalized linear mixed model with subjects as random intercepts, causal judgements as dependent variable and number of cues, child/adult categories and biology/physics categories as fixed effects revealed a significant main effect for the number of cues in an event.

Both age groups rely on singular causal cues when interpreting physical and biological events.
The more cues an event involved, the more likely the participants judged the event as causal.
Furthermore, children and adults cross-domainly interpreted inert agents as cause-objects.
The disposition of causality appears to harden with increasing age.

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